

REMARKS

In the Office Action dated August 25, 2006, claims 41-45 are pending. The Examiner has made the Restriction Requirement final. Consequently, claim 40 is examined to the extent that the claim reads on SEQ ID NO: 7 and SEQ ID NO: 8. Other sequences recited in claim 40, as well as claims 41-45, are withdrawn from consideration.

Claim 40 is rejected under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the written description requirement.

According to the Examiner, the specification describes SEQ ID NO: 7 as a partial cDNA sequence obtained from *Arabidopsis* that encodes an amino acid sequence of SEQ ID NO: 8 that is homologous to the flavonoid 3'-hydroxylase. The Examiner alleges that the specification does not describe the structural features of any DNA construct that functions to reduce the expression of an endogenous gene encoding a flavonoid 3'-hydroxylase in a plant, and that comprises SEQ ID NO: 7 or a nucleotide sequence encoding SEQ ID NO: 8. In addition, the Examiner contends that claim 40 encompasses a genus of DNA constructs that function to reduce the expression of an endogenous F3'H gene, and that the specification has not described a representative number of species within the claimed genus.

Applicants respectfully disagree with the Examiner. It is observed that the specification discloses that a nucleic acid molecule encoding a F3'H or *a part thereof* can be introduced into a plant to inhibit the conversion of DHK into anthocyanin by "reducing or eliminating endogenous or existing F3'H activity". See page 16, first full paragraph. SEQ ID NO: 7 is specifically disclosed in the specification as a partial cDNA sequence encoding a flavonoid 3'-hydroxylase from *Arabidopsis*, not just a protein homologous to a F3'H as the

Examiner has alleged. Therefore, Applicants respectfully submit that the specification does describe a nucleic acid molecule encoding a part of F3'H, such as SEQ ID NO: 7, that can be introduced into a plant to reduce the expression of an endogenous F3'H gene.

In this connection, Applicants respectfully submit that at the time the present application was filed, it was recognized in the art that a copy of *all or part* of a plant gene, placed under control of a constitutive promoter, can be inserted into the genome of the plant such that the resulting transgenic plant, or at least a subset of the resulting transgenic plants, would exhibit reduced or lack of gene expression by means of "co-suppression" or "post transcriptional gene silencing". Given the isolation of a partial cDNA sequence encoding a flavonoid 3'-hydroxylase from *Arabidopsis* provided by the present invention, those skilled in the art would consider that the present inventors were in possession of a DNA construct capable of reducing expression of an endogenous gene encoding a flavonoid 3'-hydroxylase in an *Arabidopsis* plant. In this regard, Applicants have amended claim 40 to define the plant as an *Arabidopsis* plant, and have deleted those non-elected sequences.

In light of the foregoing, it is respectfully submitted that the presently claimed subject matter is adequately described in the application in a manner that fully complies with the written description requirement. Withdrawal of the written description rejection under 35 U.S.C. §112, first paragraph, is respectfully requested.

Claim 40 is rejected under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the enablement requirement.

The Examiner alleges that the specification does not disclose how to make a DNA construct comprising SEQ ID NO: 7 or a nucleotide sequence encoding SEQ ID NO: 8 that can

be used to reduce the expression of an endogenous F3'H gene in a plant. Specifically, the Examiner contends that the ability of a DNA construct to reduce the expression of an endogenous gene in a plant is unpredictable, because the ability of an antisense transcript to suppress gene expression depends on multiple variables, including but not limited to the length of the antisense transcript, its position relative to the parent gene, and the degree of homology between the antisense transcript and the gene to be suppressed.

In the first instance, Applicants respectfully submit that the claimed construct is not directed to antisense transcript. As to the Examiner's concern relating to the degree of homology between the construct and the gene to be suppressed, SEQ ID NO: 7 is specifically disclosed in the specification as a partial cDNA sequence encoding a flavonoid 3'-hydroxylase from *Arabidopsis*, not just a protein homologous to a F3'H. Applicants have amended claim 40 to define the plant as an *Arabidopsis* plant.

Applicants further respectfully submit that based on the present teaching and the teaching respecting co-suppression available in the art at the time the priority application was originally filed, those skilled in the art would be able to make and use a DNA construct comprising SEQ ID NO: 7 or a nucleotide sequence encoding SEQ ID NO: 8 for reducing the expression of an endogenous F3'H gene in an *Arabidopsis* plant, without undue experimentation.

In support of Applicants' position, Applicants provide herewith copies of Suzuki et al. (2000) (**Exhibit 1**) and Fukusaki et al. (2004) (**Exhibit 2**), both of which demonstrate flower color modifications by co-suppression. For example, Suzuki et al. (2000) obtained a pink variety of *Torenia hybrida* by co-suppressing the F3'5'H gene based on the use of a partial torenia F3'5'H cDNA. See page 244, left column of Suzuki et al. (2000).

In view of the foregoing, it is respectfully submitted that the presently claimed subject matter is fully enabled by the specification. Withdrawal of the enablement rejection under 35 U.S.C. §112, first paragraph, is respectfully requested.

Finally, the Examiner has stated in the Action that color photographs are not accepted unless a petition filed 37 C.F.R. §1.84(a)(2) is granted. Applicants respectfully submit that no color drawings were filed in the present application, and hence no petition is required in the present case.

In view of the foregoing amendments and remarks, it is firmly believed that the subject application is in condition for allowance, which action is earnestly solicited.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Xiaochun Zhu', written in a cursive style.

Xiaochun Zhu

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